Bellwork Alg 2 Thursday, October 4, 2018

When solving Quadratic Equations using square roots, follow these steps:

1. Rearrange the equation so that what ever is being squared is by itself. (Isolate the quadratic term)
2. Take the square roots of both sides.
3. Finish solving for x if necessary.

Find all REAL EXACT solutions using square roots.

1. $3(x+7)^2 - 17 = 130$

2. $7x^2 - 113 = 13$

3. $43 - 6x^2 = 100$

4. $2(x-3)^2 + 21 = 73$

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Answers

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Find all REAL EXACT solutions using square roots.

1. $3(x+7)^2 - 17 = 130$

$+17 \quad +17$

$\frac{3(x+7)^2}{3} = \frac{147}{3}$

$\sqrt{(x+7)^2} = \sqrt{49}$

$x+7 = \pm 7$

$-7 \quad -7$

$x = +7-7 \text{ & } -7-7$

$x = 0, -14$

2. $7x^2 - 113 = 13$

$+113 \quad +113$

$\frac{7x^2}{7} = \frac{126}{7}$

$\sqrt{x^2} = \sqrt{18}$

$x = \pm\sqrt{18} = \pm\sqrt{9 \cdot 2}$

$x = \pm 3\sqrt{2}$

3. $43 - 6x^2 = 100$

$-43 \quad -43$

$\frac{-6x^2}{-6} = \frac{57}{-6}$

$\sqrt{x^2} = \sqrt{-\frac{19}{2}}$

No Real Solution

4. $2(x-3)^2 + 21 = 73$

$-21 \quad -21$

$\frac{2(x-3)^2}{2} = \frac{52}{2}$

$\sqrt{(x-3)^2} = \sqrt{26}$

$x - 3 = \pm\sqrt{26}$

$+3 \quad +3$

$x = 3 \pm \sqrt{26}$